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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/586,392	07/17/2006	Ulf Hagg	1515-1042	2551

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EXAMINER	
WU, IVES J	

ART UNIT	PAPER NUMBER
1776	

NOTIFICATION DATE	DELIVERY MODE
08/09/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

DocketingDept@young-thompson.com

Office Action Summary	Application No.	Applicant(s)	
	10/586,392	HAGG ET AL.	
	Examiner	Art Unit	
	IVES WU	1776	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 June 2011*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-2,10,16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,10 and 16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

(1). Applicants' Amendments and Remarks filed on 6/23/2011 have been received.

Claims 1, 10 are amended. New claim 16 is added.

Claims 3, 6-9 and 11-15 are cancelled.

Total cancelled claims are 3-9 and 11-15.

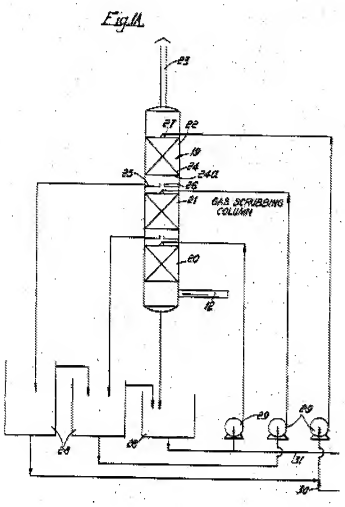
The rejection of claims 3, 6-9, 11-15 in prior Office Action dated 3/8/2011 is withdrawn as result thereof.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

(2). **Claims 1-2, 10, 16** are rejected under 35 U.S.C. 103(a) as being unpatentable over Warner et al (US 3528220) in view of Nolan (US 6399030B1).

As to a scrubber for the cleaning of gases comprising: a scrubber tower; a plurality of scrubber stages (1-4), each arranged in the scrubber tower with different ones of the plurality of scrubber stages at different levels above each other in the scrubber tower in **independent claim 1**, Warner et al (US 3528220) disclose avoidance of air pollution in the manufacture of glass fiber products (Title). It is further shown in the Figure below, the gas scrubbing column has polluted air stream inlet 12, three scrubbing stages 20, 21 and 22 arranged as claimed.



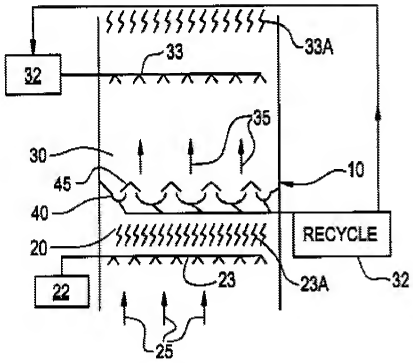
As to wherein at least one of the plurality of scrubber stages (2-4) above a lowest one of said plurality of scrubber stages (1) comprises a ring-shaped fluid storage tank (10,15,20) arranged inside the scrubber tower and is arranged surrounding a central channel (9, 14, 20) through which the gas that is to be cleaned can pass upward in **independent claim 1**, as shown in the Figure above, the liquid collecting tray 25 (**ring-shaped storage tank**), and chimney riser 26 are read on the limitations as claimed.

As to a separation trough at bottom of each of the plurality of stages of the scrubber above the lowest one of the plurality of scrubber stages and arranged separating the fluid from the upwards flowing gas, the separation trough having obliquely placed laminae leading the fluid that arrives from one of the plurality of scrubber stages disposed above the separation trough to

trough channels arranged under the laminae, that lead the fluid onwards to the corresponding ring-shaped fluid tank in **independent claim 1**, Warner et al (US 3528220) disclose each zone containing Glitsch Grid packing 24 supported on a baffle plate 24a and has a liquid-collecting tray 25 at its base. Warner et al **do not teach** troughs as claimed.

However, Nolan (US 6399030B1) **teaches** combined flue gas desulfurization and carbon dioxide removal system (Title). As shown in the Figure 1 below, it contains a series of baffles and drains 40. One or both of the drains 40 and baffles 45 (**obliquely placed laminae**) may be oriented at an inclined angle toward a front or back of the wall of the vessel 10 to improve drainage of the 2nd reagent 32 from the vessel 10 for recycling (Col. 3, line 6-20).

FIG. 1



The advantage of baffles and drains is to provide a simple, mechanical separator between the gas separation processes within the vessel (Col. 2, line 4-6).

Therefore it would have been obvious at time of the invention to install the baffles, drains of Nolan for the baffle plate for each scrubber stage in the vessel of Warner et al in order to attain the advantage cited above.

As to the separation trough is recessed within the surrounded by the ring-shaped fluid storage tank in **independent claim 1**, it would be within the space formed by wall of the column and liquid collection tray as the teaching of baffles, drainages disclosed by Nolan is combined.

As to a pump tank at each of the plurality of scrubber stages above the lowest one of the plurality of scrubber stages and arranged at an outer surface of the scrubber tower, the pump tank being connected directly to the corresponding ring-shaped fluid storage tank through a connection in the outer surface of the scrubber tower in **independent claim 1,** as shown in figure above the tank 28 which reads on pump tank as claimed. It would be obvious to place two leftmost tanks 28 above the lowest scrubber stage 20 in order to save energy of pump as well as save space. Rearrangement of parts renders obvious, *In re Kuhle, 526 F.2d 553, 188 USPQ 7 (CCPA 1975).*

As to a circulation pump connected to the corresponding pump tank at a level of each of the plurality of scrubber stages and arranged to feed, through feed pipes present in the corresponding pump tank, fluid from the corresponding ring-shaped fluid storage tank at the bottom of the scrubber stage to spray beams arranged at the upper part of the scrubber stage for distribution over the cross-section of the scrubber in a direction against the upwards gas flow; and a length of the feed pipe is limited to a height of the scrubber stage in **independent claim 1**, as shown in the Figure above, the three circulation pump, connection between ring-shaped sump and tank 28, connection between the tank 28 and spray 27, pumps 29, which reads on the limitations as claimed. It would be obvious to have the pump 29 at level of scrubber stage in order to save energy of pumps as well as space, in such configuration, obviously that the length feed pipe is also less or equal to height of scrubber stage. Re-arrangement of parts renders obvious, *In re Kuhle, 526 F.2d 553, 188 USPQ 7 (CCPA 1975).*

As to wherein each of the plurality of scrubber stages (2-4) above the lowest of the plurality of scrubber stages comprises the ring-shaped fluid storage tank located inside of the scrubber tower in **claim 2,** as shown in the Figure above, it contains features as claimed.

As to wherein the feed pipe feeding the fluid to the spray beams is located inside the outer surface of the scrubber in **claim 10**, it would be obvious to have the feed pipe inside the tower in order to avoid much changes on temperature of the scrubber fluid, also a shorter conduit. Re-arrangement of parts renders obvious, *In re Kuhle, 526 F.2d 553, 188 USPQ 7 (CCPA 1975).*

As to a scrubber for the cleaning of gases comprising: a scrubber tower; a plurality of scrubber stages, each arranged in the scrubber tower with different ones of the plurality of scrubber stages at different levels above each other in the scrubber tower, at least one of the plurality of scrubber satages above a lowest one of plurality of scrubber stages comprises a ring-shaped fluid storage tank arranged inside the scrubber tower and is arranged surrounding a central channel through which the gas that is to be cleaned can pass upwards; a separation trough at the bottom of each of the plurality of scrubber above the lowest one of the plurality of scrubber stages and arranged separating the fluid from the upwards flowing, the separation trough having obliquely placed laminae leading the fluid that arrives from one of the plurality of scrubber stage disposed above the separation trough to trough channels arranged under the laminae that lead the fluid onwards to the corresponding ring-shaped fluid storage tank; a pump tank at each of the plurality of scrubber stages above the lowest one of the plurality of scrubber stages and arranged along the scrubber tower, the pump tank being connected directly to the corresponding ring-shaped fluid storage tank; and a circulation pump connected to the corresponding pump tank at a level of each of the plurality of scrubber stages and arranged to feed through a feed pipe present in the corresponding pump tank, fluid from the corresponding ring0-shaped fluid storage tank, fluid from the corresponding ring-shaped fluid storage tank at the bottom of the scrubber stage to spray beams arranged at the upper part of the scrubber stage for distribution over the cross-section of the scrubber in a direction against the up-wards gas flow; wherein the separation trough is recessed within the surrounding by ring-shaped fluid storage tank and a length of the feed pipe is limited to a height of the scrubber stage in **independent claim 16**, the disclosure of Warner et al, Nolan is incorporated herein by reference, the most subject matters as currently claimed, have been recited in Applicant's claim 1, and have been discussed therein.

Response to Arguments

(3). Applicant's arguments filed on 6/23/2011 have been fully considered but they are not persuasive.

Applicants again raise the arguments which focus on the contention of obviousness rationale (rearrangements of parts) - it is applied to the tank 28, pump 29 of Warner et al (US 3528220) to be re-arranged at same level of its scrubber stage, as well as the feed pipe to be insider the tower claimed by Applicants. The reasoning is elaborated further in paragraphs above. Applicant further argues that even if one of ordianry skill would do so, such rearrangemnt would cahnge the rpinicple operation of the Warner et al. Applicant argues that such would prevent the concentration control desired by Warner et al. However such reaarangment would still result in the proportion flowing through the tanks 28 from each stage.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to IVES WU whose telephone number is (571)272-4245. The examiner can normally be reached on 8:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571-272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Examiner: Ives Wu
Art Unit: 1776
Date: August 2, 2011

/Duane Smith/
Supervisory Patent Examiner, Art Unit 1776